



Discount Rates Under Solvency II
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WELCOME

Welcome to Milliman's UK life insurance newsletter, which discusses current industry issues and aims to bring clarity to an increasingly complex environment.

This issue covers topics such as:

- A description of the various methods of allocating economic capital
- An analysis of the latest thinking around Solvency II discount rates
- Issues currently facing mutual life insurers
- Islamic finance - an introduction to sukuk

We hope you enjoy reading the newsletter and look forward to your feedback.

As 2009 draws to a close, it is time to look back on a remarkable, rollercoaster year: one in which the FTSE 100 index fell by 20% in the first two months, and then rose by 50% over the next nine; when economies around the world started to emerge from recession, while further shocks and revelations reminded us of the fragility of the recovery.

It is generally acknowledged that, overall, the UK life industry has come through the financial crisis in reasonably good shape, thanks to improved risk management following the 2000-03 bear market and a reasonably permissive attitude towards Pillar 2 solvency by the FSA. It might have been a very different story if Solvency II had been implemented in 2008 in line with the latest Level 2 advice from CEIOPS. Even with the benefit of the equity dampener proposed in CP69, more forced asset sales would surely have been required, exacerbating the downward spiral in market values.

the treatment of UK annuity business is concerned. However, the restriction of a liquidity premium to genuinely illiquid liabilities seems likely to cause major problems for some classes of overseas business, such as US fixed annuities, and put EU-owned writers at a severe competitive disadvantage.

The FSA's enlightened approach to minimising procyclical behaviour in the recent crisis contrasts with a seemingly uncompromising attitude to the issues facing the mutual life industry as with-profits business declines. We consider what the implications of the recent 'Dear CEO' letter will be for UK mutuals. Also in this edition we update our readers on the glacial progress towards IFRS Phase 2 for insurers, and the latest in a series of articles on the aspects of Islamic finance. This one covers sukuk (Islamic bonds), the profile of which has been heightened by recent events in Dubai. The final article addresses an issue which many insurers have been grappling with as they improve their economic capital modelling – how to allocate capital to individual business units and product lines.

The experience of the past 18 months has led to a greater appreciation of the importance of understanding policyholder and management actions, and of the value of liquidity. It has also highlighted the dangers in applying market-consistent methods to markets which are neither deep nor liquid, and how little we know about the loss distributions for some of our risks. It is not too late for these lessons to be reflected in the final design of Solvency II.

In this edition of Issues in Brief, we consider two specific aspects of Solvency II – the approach to defining the risk-free yield curve, and its application to groups. Both of these areas have been the subject of vigorous lobbying, with some success as far as

I hope you will enjoy reading these articles. All of us at Milliman would like to take this opportunity to wish our readers a happy, and hopefully more stable, 2010. If you would like to hear more, please contact me at nick.dumbreck@milliman.com

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DISCOUNT RATES UNDER SOLVENCY II

OF THE 54 CONSULTATION PAPERS (CPs) issued by CEIOPS during 2009, few have provoked as much debate within the UK insurance industry as CP40, which sets out the approach companies should follow when determining a risk-free interest rate term structure for the purposes of discounting their liability cash flows.



CP40 proposes a set of desired characteristics that an appropriate risk-free curve should possess:

- No credit risk
- Realism
- Reliability
- Highly liquid for all maturities
- No technical biases
- Available for all relevant currencies
- Proportionate

CEIOPS sets out in the CP a three stage process to determine the risk-free rate that should be used in the calculation of the technical provisions and provides the example of the risk-free interest rate term structure for the Euro. The CP finishes with a description of three methods for the extrapolation of the risk-free interest rate structure beyond the last point of deep liquidity on the interest rate curve.

Generating the most comment are the points in the CP concerning the starting point or base reference point for the

risk-free discount rate and the inclusion or otherwise of an illiquidity premium. We cover these two issues below.

THE BASE REFERENCE RATE

CEIOPS believes that the main objective for the determination of risk-free discount rates for liabilities is to allow as little credit spread as possible, concluding that companies should use AAA rated government bonds as a benchmark. CP40 states that swap rates (adjusted for credit risk) may be used only if the relevant government bond rates cannot be adjusted to meet the principles.

CEIOPS has published many responses to the consultation papers from companies and other industry bodies. There is strong feeling across the European insurance industry on this issue and there appears to be growing sentiment against the proposal that government bonds should be the starting point in determining a risk-free yield curve. Reasons for this include:

- The incentive to invest in bonds of lower credit rating than AAA would be reduced. This has the following potential consequences:

- Countries not rated AAA may find it increasingly difficult and/or expensive to borrow, potentially worsening their economic situation, making recovery more difficult, and leading to a procyclical effect for recently downgraded countries.
- There may be a drop in demand for corporate debt – in particular insurers may see fewer advantages to holding high quality corporate debt.
- The supply and demand for government bonds would distort the derived rate at different durations.
 - On the demand side, different investors dominate at different durations – for example to match different liabilities such as specific insurance products and pension obligations.
 - The supply of government bonds at various durations is controlled by the government and therefore depends on the monetary/fiscal policy of the time.
- Some insurance liabilities are of durations that exceed the durations of government bonds of sufficient

liquidity. Extrapolation beyond the last liquid yield point brings out numerous issues.

- The supply of bonds at certain durations is insufficient to cover the total insurance liabilities. Thus, it would be difficult for insurers to immunise against changes in the risk-free rate.

Some industry correspondents have gone so far as to suggest that basing the risk-free rate on government bonds would damage European economic stability, due to the likely sale by insurers of government bonds from countries not AAA rated, coupled with a disinvestment in industry as insurers move out of corporate bonds. The alternative solution of basing the risk-free rate on swap rates, adjusted to allow for the credit risk of the swap issuer, appears to partially address most of these issues.

The distortions at certain durations due to the many factors affecting the supply and demand of AAA rated government bonds would be less pronounced in the swap market, as this is deeper and more liquid than the market for government bonds. Also the supply of swap rates is less sensitive to government policy. However, during the recent financial crisis the swap market became very illiquid.

The ABI noted that for yield curves to be 'market-based' requires consistency with the discount rates used to value financial instruments, implying the use of swaps and not government bonds. On the other hand, it should be noted that the market swap rate would need adjustment for credit risk. Determination of this adjustment is not straightforward and needs to be universal.

THE ILLIQUIDITY PREMIUM

The other CP40 proposal causing debate within the industry is regarding allowance for the so-called 'illiquidity premium'. The consultation paper states that 'The great majority of CEIOPS believes that the relevant risk-free interest rate term structure should not include an illiquidity premium reflecting certain cash-flow characteristics of insurance obligations. A minority of CEIOPS members do not fully share this view and believe that this issue requires further investigation'.

UK annuity writers currently typically allow (implicitly or explicitly) for an illiquidity premium in the valuation of their liabilities on both Pillar I and Pillar II. The justification for this is that, because of the illiquid nature of annuity liabilities, insurers have limited exposure to the risk of needing to disinvest themselves of large amounts of corporate bonds in stressed market conditions. This enables them to hold bonds to redemption and to earn the full yield net of any losses on default. In addition, the usual absence of a significant benefit payable to the policyholder on surrender or death (again inherent illiquidity) should require some compensatory extra return to be paid by the insurer to the policyholder. The effect on annuities is obviously more severe than on shorter-term products, as the effect of an adjustment to the discount rate will be more significant over the longer durations.

Due to the disproportionate size of its annuity market, the exclusion of an illiquidity premium from the risk-free yield curve would have a large impact on insurers operating in the UK and we assume that the UK is one of the 'minority' referred to in the CP. However, an increasing number of countries and companies are realising that this is an issue worthy of their attention and consideration as awareness grows that it could be possible to justify the inclusion of an illiquidity premium in the valuation of a wide range of insurance liabilities.

There have been many reports in the press regarding the size of this issue for the UK – discussions for example of a £50 billion capital shortfall and a 20% increase in the cost of new annuities in press reports referring to a leaked ABI letter. Whilst these are aimed at providing headlines and have been prepared by interested parties, there is no doubt that the absence of an illiquidity premium would present a major challenge to the UK annuity industry.

Many responses to CP40 have supported the inclusion of an allowance for illiquidity in the risk-free yield curve used to discount illiquid liabilities, such as annuity portfolios. The exact definition of 'illiquid liabilities' is to be determined, but the European

Insurance CFO Forum Market Consistent Embedded Value Principles (MCEV Principles)* glossary states that a liability is liquid if 'the liability cash flows are not reasonably predictable'. A more restrictive definition may be considered necessary for regulatory valuation purposes.

Of course, the issue of quantifying the allowance for the illiquidity premium is not exclusive to Solvency II. Under Pillar 1, UK companies are currently permitted to make some implicit allowance for an illiquidity premium for liabilities backed by corporate bonds, where there is no reinvestment risk. The determination of the proportion of the spread to allocate to illiquidity is an issue of much academic debate, but currently it is sufficient for companies to err on the side of prudence. However, when technical provisions become 'best-estimate' under Solvency II, the calculations are likely to need refinement.

CEIOPS FINAL ADVICE

To date, CEIOPS has issued its final advice to the European Commission in respect of the 'vast majority' of areas covered in the first and second waves of CPs.

CEIOPS remains committed to its preference for the risk-free rate to be based on the yield available on AAA rated government bonds. The FSA's position as outlined in Annex C to CP40, that the swap curve less an adjustment for credit risk is the best reference point for the term structure for sterling risk-free discount rates, is explicitly referenced (as the UK supervisory authority). This position is soon dismissed as being against CEIOPS's majority view that sterling-denominated liabilities should be valued using a discount rate term structure based on 'the government curve'.

On the issue of the illiquidity premium, CEIOPS acknowledges that the valuation of certain types of business using the risk-free rate without an illiquidity premium would have a significant impact on the future viability of such products and that therefore further work is necessary.

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THE FUTURE OF MUTUAL LIFE INSURERS



THE DECLINE IN SALES OF WITH-PROFITS CONTRACTS IN RECENT YEARS has been a source of concern to many companies writing this class of business. However, the decline has become a major threat to the future existence of the mutual life insurance sector. Whilst it may appear that a switch of business direction into other forms of life insurance, such as unit-linked or other non-profit business, is the obvious solution, this is proving not to be a simple exercise. The FSA recently wrote to the CEOs of mutual life insurance companies setting out its views on the subject.

Mutual life insurance companies and friendly societies are capitalised through the retained surplus which has accumulated over the years. Whilst with-profits business continues to be written, it is generally accepted that there is no need to distribute capital (subject only to the amount held not being excessive). However, the FSA's COBS rules require that where no (or little) new business is being written, a closed fund plan to distribute the capital must be prepared. This effectively constrains mutual societies from relying on forms of life insurance other than with-profits as the future mainstay of their new business. In recent months, focus has turned to questions of whether some new form of participation

can be devised which adequately meets the description of with-profits business and so would prevent funds being deemed to be closed. The FSA's letter considered both the use of retained surplus to fund non-profit business and the criteria for business being considered with-profits.

The key points made by the FSA, having obtained legal opinion (which it published along with its letter), were:

- The surplus in a mutual company is wholly attributable to its with-profits policyholders and it is appropriate for a closed fund to be managed to ensure that surplus is distributed to those policyholders in line with COBS 20.
- The attribution of surplus for the purpose of transacting non-profit business in the future requires with-profits business to receive appropriate recompense for the capital 'borrowed'. The terms of the non-profit business should be demonstrated not to have an adverse effect on with-profits policyholders, and the capital itself must be returned in a timely manner for equitable distribution to with-profits policyholders.
- New forms of with-profits policies may be permissible but firms will have to demonstrate that the new style does not place the existing business at a disadvantage. For this purpose, the right of the existing business to share

in the retained surplus in a closed fund will need to be taken into account. The FSA has also expressed a view that profit sharing must be meaningful and should not merely reflect membership.

The FSA's stance appears to ignore the historical development of mutual companies and the evolution of with-profits business, and the FSA's view, as does its legal opinion, starts from the premise that the current COBS rules offer the correct yardstick.

Mutual companies developed in response to recognised social and financial needs but from the earliest days it was recognised that, in order to meet those needs and to be sustainable, an appropriate capital base would have to be built. Profit sharing was not initially the aim. It was only when businesses could satisfy capital requirements that profit sharing evolved. Over time the nature of profit sharing has also developed from simple mortuary bonuses through conventional business with specific

bonus loadings and high guarantees to unitised with-profits business with modest guarantees (and, in some forms, with limited participation in profits). Other types of participation may also exist in the framework. This evolution has occurred without consciously addressing the questions now raised by the FSA but, by and large, the various types of participation have generally coexisted well.

The FSA has indicated that any new style of participation must be 'meaningful' and not just a trivial allocation based on membership. Perhaps the use of a 'contribution' approach would satisfy the requirements, if the formula applied to all business written. The profit allocated would reflect the relative contribution made from each source by individual policies and may be small for non-profit protection policies but larger for investment products.

We have no doubt that suitable profit-sharing mechanisms can be developed, but it seems odd that new types of

participation should be subject to a closed fund type test which is a higher hurdle than would apply to the writing of new with-profits business of a type which already exists in the with-profits fund (which would be based on open fund measures).

We also note that the FSA's letter does not address the circumstances of friendly societies operating under rules, firms where the distribution of surplus is restricted by earlier schemes of transfer and friendly societies writing Holloway sickness policies that are not subject to COBS 20.

Finally, although the FSA's letter relates to mutual insurers, it appears to set a marker for proprietary with-profits funds looking to introduce new styles of with-profits business.

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DISCOUNT RATES UNDER SOLVENCY II

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CEIOPS appears to leave the door open for a special exception in the case of such significantly affected blocks of business, but states that it believes the scope should be 'exclusively limited to the affected business in force'. Taken literally, this implies a different treatment for annuities sold prior to Solvency II implementation from those sold after the implementation date. Whilst allaying concerns in the industry regarding companies requiring an immediate significant injection of capital, this would not meet concerns regarding significant increases in the future cost of annuity provision for customers. It seems this debate still has some way to go before the European Commission finalises the Solvency II specifications and we understand the EC has now asked CEIOPS to reconsider whether an illiquidity premium should be permitted for new business.

CEIOPS has set out seven conditions to be met by products that propose an illiquidity premium be used in the

valuation. These include that the contracts do not pay discretionary benefits, that the only underwriting risks to which they are exposed are expense and longevity risks, and that the policyholder has no right to fully or partially surrender the policy.

The conditions create issues for some existing annuity contracts such as with-profits annuities (discretionary benefits), annuities with surrender values, and some variable annuity contracts (guaranteed surrender values). We assume that, for valuation purposes, it would be allowable to split such products into components, one being a standard retirement annuity (which could be valued using an illiquidity premium). If this is not the case, then companies with large current portfolios of such contracts could be required to raise large amounts of additional capital on implementation of Solvency II.

With respect to the determination of the illiquidity premium, CEIOPS's comments

suggest that it expects the premium to be calculated by a central institution, with one illiquidity premium for a given currency regardless of the actual assets or liabilities held by that company. It is not obvious that the arguments for an illiquidity premium (no surrender value, holding bonds to redemption and compensation for inflexibility) would be the same in all cases. One liquidity premium per currency could lead to distortions in the corporate bond market in that country, particularly for corporate bonds whose yield (ignoring the credit risk premium) is at or around the risk-free rate adjusted for the illiquidity premium. Again we expect to see future discussions and debate in this area.

If you would like to know more about how Milliman can help you prepare for Solvency II, please contact oliver.gillespie@milliman.com, robert.bugg@milliman.com, matthew.cocke@milliman.com or your usual Milliman consultant.

ALLOCATION OF ECONOMIC CAPITAL

A LARGE AMOUNT OF INVESTMENT has gone into answering the question of how to aggregate risks in the tails of their distributions, how to overcome the shortcomings of the neatly tractable correlation matrix, and how to calibrate copulas.



Firms find it increasingly useful to allocate diversification benefits back to business centres, to arrive at the risk-adjusted capital requirement for an activity. The allocation of capital, important for measuring profitability in relation to risk, is essential for pricing insurance products, as well as for the planning and control cycle. The more fairly balanced the allocation, the more informed the measure of return on capital.

The following possible methods of allocating capital are:

- Pro rata
- Variance/covariance
- Discrete marginal contribution
- Continuous marginal distribution
- Window conditional expectation

Recent approaches also include game theory and option-valuation techniques (viewing the shareholder's limit on liability as a put option).

Milliman is currently researching the implementation of various methods of capital allocation.

PRO RATA APPROACH

The pro rata approach allocates capital back to individual risks (cells) in proportion to their stand-alone capital contribution relative to the sum of the stand-alone capital contributions (this latter term would be the capital requirement for the business if all the cells were perfectly correlated). This approach may allocate too much capital to an activity which is a genuine diversification for the firm, while understating the true risk capital for those units with heavy correlation.

Its advantage lies in its simplicity. For example, consider Firm X with two risks, A and B. The stand-alone capital requirement for Risk A is 4, and the stand-alone capital requirement for Risk B is 3. The risks have negative correlation, with the overall capital requirement for Firm X being 3.6. The capital would be allocated back to Risk A as $3.6 \times 4/7 = 2.1$ and Risk B as $3.6 \times 3/7 = 1.5$.

VARIANCE/COVARIANCE APPROACH

Where risks are aggregated via a correlation matrix, there is a consistent method of allocating the diversified capital back to the individual risks – the component value at risk, defined by:

$$CVaR_i(\alpha) = \frac{VaR_i(\alpha) \sum_{i,j} \rho_{i,j} VaR_j(\alpha)}{\sqrt{\sum_{i,j} \rho_{i,j} VaR_i(\alpha) VaR_j(\alpha)}}$$

Straightforward to implement, this approach has drawbacks. It relies on the normal distribution, and in terms of aggregating the risks, linear correlations capture the dependence structure only in a limited number of cases, resulting in wrongly estimated diversification benefits.

DISCRETE MARGINAL CONTRIBUTION

The discrete marginal approach, an approximation to the continuous marginal contribution, has a certain intuitive logic, but needs scaling at the

end to fit properly. The capital for each risk is taken by subtracting the capital requirement for a portfolio without that risk from the total capital requirement. In effect, the capital for the risk is the release in required capital from removing that risk from the portfolio. However, results must be scaled so that the capital requirements from the individual cells equal the total capital requirement.

Related approaches involve sequentially constructing the portfolio from scratch and watching the changes in capital requirements as the portfolio is assembled in different orders. As more building blocks and sequences are considered, calculation time obviously increases. Advanced compression techniques such as cluster modelling can significantly affect the ability to use these approaches.

CONTINUOUS MARGINAL CONTRIBUTION

The continuous marginal contribution approach is a more detailed version of the discrete marginal contribution approach.

Here the starting point is to remove a small portion of a risk and look at the reduction in total capital requirement. This ends in a Euler-type approach, calculating a partial derivative of total risk with respect to each individual risk. The capital allocation is then the capital requirement for the stand-alone risk multiplied by the relevant partial derivative. These capital allocations add up to the total capital of the portfolio.

In the Firm X example, shown in Figure 1, the capital requirement for Risk A would be the change in total capital requirement divided by small increases in Risk A, the slope indicated by the blue arrow, approximately 2.8. The capital requirement for Risk B would be the slope indicated by the green arrow, approximately 0.8.

However, using the continuous marginal can result in potentially undesirable effects, especially if the total risk surface is curved. For example, the continuous marginal can be negative in places, resulting in a negative capital requirement for that risk. (In Figure 1, this would happen if, for example, the company contained only a third of Risk A above, in which case the capital allocated to Risk A

would be negative. Were the correlation coefficient -0.75 instead of -0.50, the capital for Risk B would be almost zero.) Although useful at times, marginal capital requirements do not help measure the return on the capital allocated to all of that risk.

WINDOW CONDITIONAL EXPECTATION

The window conditional expectation is the expected loss for a specified window of possibilities, for example, between 99.5% and 99.9%. It is defined by:

$$WCE = E[L_T | VaR(L)_{\alpha-\Delta} \leq L_T \leq VaR(L)_{\alpha+\Delta}]$$

Contributions from individual risks/cells to the window conditional expectation can be calculated as the expected individual risk loss, given that the total portfolio loss is in the range of losses used to calculate the window conditional expectation, as follows:

$$WCE_i = E[L_i | VaR(L)_{\alpha-\Delta} \leq L_T \leq VaR(L)_{\alpha+\Delta}]$$

The advantage is that they are not marginal and, when summed across individual risks, give the total required capital without adjustment.

If simulations are carried out in more detail – i.e. for individual risks within individual business centres – then it

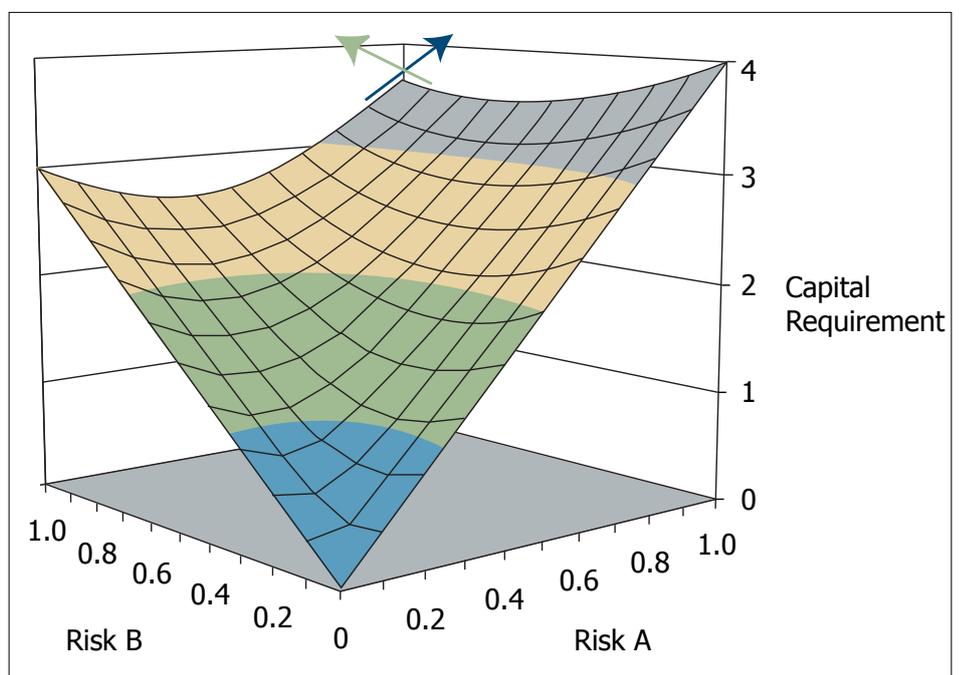
is possible to allocate capital down to individual business centres as well as to individual risks, or even to individual risks within individual business centres. Contributions from each risk cell or business unit to the total capital must be recorded for every simulation, facilitating straightforward reading-in the individual contributions to WCE. However, it is likely that a large number of simulations would likely be necessary for stability. In addition, simulations for all the risks would be required, whereas in practice, capital requirements for some individual risks probably will have been determined analytically.

CONCLUSION

As modelling capabilities develop (e.g. tail sampling, cluster modelling, replicating portfolios), more sophisticated and technical methods of measuring and allocating capital become available. However, despite sophistication, methods can give misleading results or be unsuitably implemented. While market consistent allocations of capital can be useful, for day-to-day business requirements, simpler approaches may have the right dynamics.

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Figure 1: Capital Requirement



PHASE II INSURANCE CONTRACT REPORTING



EXPOSURE DRAFT DELAYED

PUBLICATION OF THE LONG-AWAITED INTERNATIONAL ACCOUNTING STANDARDS BOARD (IASB) Exposure Draft for Phase II insurance contract reporting has been pushed back to April 2010, with a final standard due in 2011. The hope was to get something out by the end of 2009, prior to the June 2011 departure of several members of the IASB who are close to the insurance project. This appears to have been too challenging.

FIELD TESTING

The IASB staff intend to conduct targeted field testing during the period up to, and possibly beyond, the publication of the Exposure Draft. However, whilst some limited field testing has already begun amongst 16 companies, full field testing cannot start until a decision is made regarding the measurement objective.

The insurance industry has long supported the concept of field testing for IFRS insurance contract reporting. Field testing conducted now, encompassing actual historical periods of both good and bad economic

environments, enables development of a more robust measurement framework. Given the financial turmoil recently experienced, the results of any such field testing are likely to be highly sensitive. In particular, disclosure of any results may require close monitoring to avoid breaking certain stock exchange listing rules.

TWO MEASUREMENT OBJECTIVES

The two major measurement objectives under consideration are:

- (1) A 'fulfilment value' measurement model with a single aggregate margin
- (2) An 'IAS 37' transaction-based measurement model, consistent with impending revisions to IAS 37

For short-term pre-claims liabilities, the IASB has also tentatively agreed to the use of an unearned-premium-reserve approach. Therefore, it seems that 'Current Exit Value', which was previously discussed, has finally left the building, the major difference being that the above models are calculated from the insurer's perspective rather than the market's perspective.

IAS 37 MODEL

The IAS 37 model is essentially what an entity would rationally pay to be relieved of its liability. In particular, the liability would be the lower of the following two items:

- (A) The value to the entity of not having to fulfil its obligation
- (B) The amount the entity would need to pay to cancel the obligation or transfer it to a third party

If there is no evidence to calculate (B), then the entity measures the obligation as the value of not having to fulfil it.

Consequently, this approach is a transaction price from the insurer's perspective. This contrasts with Current Exit Value, which was from the perspective of the market.

Under IAS 37, the liability would normally be calculated using the following three building blocks:

- (1) Expected cashflows
- (2) Time value of money
- (3) A margin

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SOLVENCY II – RISK MANAGEMENT: GROUPS AND EMERGING RISKS



GROUPS

In the latest round of Level 2 advice, CP66 provides guidance relating to the supervision arrangements for groups which centralise risk management. One clear point is that there is a difference between consistent group-wide risk management and centralised risk management, although CEIOPS does clearly state that it considers the two concepts to be complementary. In order to satisfy regulators, a centralised risk management system will have to be well documented and transparent. Any centralised function therefore needs to be deliberate, rather than an implicit state of affairs. In assessing the 'consistency' of the implementation of the risk management framework, a firm is required to ensure that all relevant processes and procedures are implemented coherently within the whole group. It is particularly important to note that the individual entities within the group must still maintain adequate risk management on a solo basis. However, it is the responsibility of the parent to ensure that implementation is consistent across the group and that it has suitable tools in place to ensure that the group-wide risk management system is implemented correctly and working effectively at the solo level.

In line with other guidance on the risk management system, there is a need to ensure that risk management is part of the group strategy process, and to demonstrate an understanding at group level of the risk profile of the individual undertakings within the group. The group risk function has a duty to consider the impact of decisions upon the risk situation and solvency of both group and the solo entities. The group function also has to pay particular attention to the specific risks

occurring at group level and as a result of the interactions of risks within the group, intra-group transactions and concentrations.

Given the general requirements for a risk management system also apply in the context of the group, consideration needs to be given to the following at group level:

- Risk management function
- Risk management strategy
- Adequate written policies
- Processes and procedures
- Internal reporting
- Group Own Risk and Solvency Assessment
- Emergency planning and business continuity management
- Internal control system at group level
- Group internal audit
- Compliance function
- Actuarial function
- Liquidity management

There are additional requirements for these where risk management is formally centralised, since the group is accepting responsibility for the delivery of certain tasks on behalf of the business units.

EMERGING RISKS

A central theme to risk management is identifying the next big thing. It is therefore essential that a robust process

is in place to identify, assess, monitor and manage such risks. The problem with traditional approaches to capturing risk information is that it immediately forces each risk to be placed in a single bucket.

Most risk frameworks encourage users to categorise the risk according to its dominant trait, but this misses vital information about how the risk is made up and how it may be similar to other identified risks. It is better to adopt techniques which enable each risk to be categorised according to the several characteristics of which it is comprised, and then determine its proximity to other risks allowing for this multi-characteristic nature. Such an approach adds significant insight into the development of the firm's risk profile and can be achieved with tools which are very easily accessible to organisations of all sizes. An additional advantage of adopting a more realistic approach to classifying risks is that it makes it much more straightforward to consider how the risks might evolve in the future. Although traditional frameworks have encouraged single characteristic classification, Solvency II really does move things on by stating that firms need to 'identify, measure, monitor, manage and report, on a continuous basis the risks, on an individual and aggregated level, to which they are or could be exposed, and their interdependencies'.

If you would like to find out more about how complexity-based approaches to risk analysis can help you to implement practical solutions for Solvency II, please contact Neil Cantle at neil.cantle@milliman.com or Oliver Gillespie at oliver.gillespie@milliman.com.

SUKUK – AN ISLAMIC ALTERNATIVE TO CONVENTIONAL BONDS

IN THE PREVIOUS NEWSLETTER we described Takaful (Shari'a-compliant insurance) and its growing attractiveness within both the Muslim and non-Muslim population in Europe. This article examines the issues surrounding the Islamic bond (sukuk) as a Shari'a-compliant alternative to conventional bonds.



Conventional bonds are widely used as key components of a balanced investment portfolio, providing regular income and an appropriate match for future fixed liabilities. These bonds, however, yield interest (riba) and may also deal in activities that are deemed forbidden in Islam (haram) and consequently are not permitted under Shari'a law. The development of the Islamic bond is an essential component of the growth of the Islamic finance and Takaful industry. As this continues there will be an increasing demand for a wide variety of sukuk (both in duration and currency denomination) which will be vital if the growth of Takaful products is to flourish outside the more traditional marketplaces.

THE ISLAMIC BOND (SUKUK)

Sukuk are Islamic investment instruments that are always linked to the underlying assets, with a sukuk certificate registered in the name of the bondholder being proof of ownership of that asset. It is this direct ownership of underlying assets for sukuk holders which ensures that the instrument is Shari'a compliant. In contrast, a conventional bond holder owns the financial debt of the issuer. Sukuk do not pay interest (as interest is not Shari'a compliant), but instead generate a return through actual economic transactions via the sharing or leasing of the underlying assets.

In practice, the purpose of sukuk is not dissimilar to that of conventional bonds. They are a means by which a company

can raise funds for a project and in turn investors can benefit from an asset class in their portfolio with properties similar to a bond, but based on a different legal structure.

THE CURRENT SUKUK MARKET

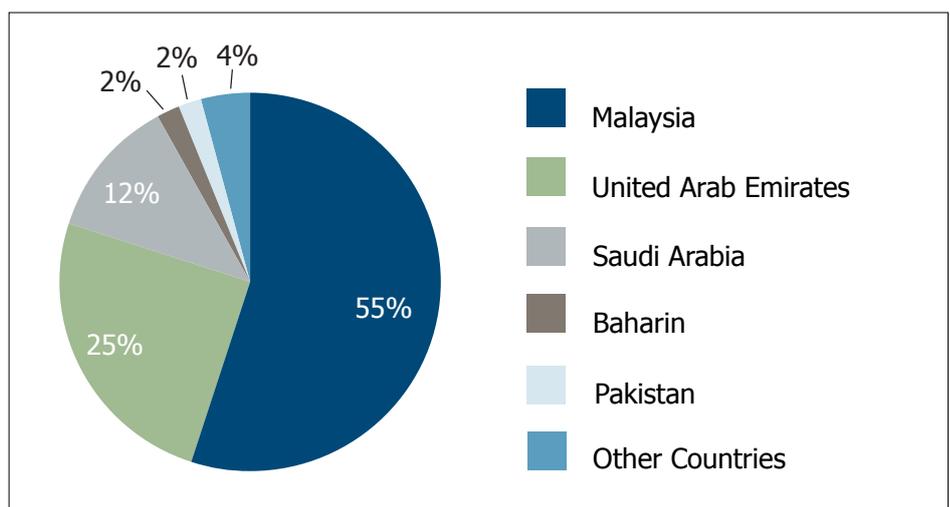
The sukuk market has experienced significant growth over the last decade, with \$120 billion issued between 2000 and 2008 and in the region of \$16.9 billion issued to date during 2009. Whilst the strongest growth is largely in the Middle East, Europe is beginning to witness an increasing interest in the sukuk market.

Although not insulated from the effects of the credit crunch, the impact on the sukuk market was less marked due to the lack of exposure to non-compliant mortgage backed assets and credit

default swaps. Sukuk, however, should not necessarily be regarded as more secure than their conventional bond counterparts within the credit market. During 2009 three sukuk defaulted leaving sukuk holders vulnerable to the legal rulings of secular courts on their status as either creditors or equity holders. Despite this turbulence, the demand for infrastructure-based issuances has recovered. The Malaysian ringgit, U.A.E. dirham, and US dollar markets are continuing to recover, as recently evidenced by Dubai's \$2 billion issuance of a fixed five-year Islamic bond at the end of October, the largest sukuk issuance during 2009, which was over subscribed by more than 200%.

Figure 1 shows the distribution of the sukuk market by country at December 2008.

Figure 1: Distribution of the sukuk market



CHALLENGES FACED BY INSURERS

Despite the growth in the sukuk market, Takaful operators face the dilemma of finding assets suitable to match the liabilities held, both by duration and currency. To date there have been no sukuk issuances with a term greater than 10 years and the majority are less than five years. It is acknowledged within the Islamic finance industry that there is insufficient sukuk to satisfy market demand, leading to significant over subscription of any new issuances.

In addition, there have been no sterling denominated (and limited euro denominated) sukuk issuances. The UK government is currently expressing a preference for bill type issuances with terms of less than one year. As a result,

European insurers offering Shari'a-compliant products are largely limited to US dollar, Malaysian ringgit, S.A. riyal, or U.A.E. dirham denominated sukuk, which leave them exposed to currency risk. Whilst tradable, the secondary sukuk market remains relatively illiquid posing further challenges to investors.

The potential advantages for sukuk in the European landscape are becoming more apparent, with the UK and French governments in particular taking the necessary legislative steps to facilitate the growth of these instruments as part of the race to be regarded as the international gateway for Islamic finance in Europe. The UK government amended its tax legislation last year to facilitate the development of Shari'a-compliant bonds within the UK. In addition, HM Treasury and the FSA have recently

published proposed changes to the relevant statutory instrument aimed at ensuring that sukuk are regulated on a level playing field.

In the meantime, sukuk continue to emerge as a new asset category, providing the benefit of further portfolio diversification for both Muslim and non-Muslim investors alike, and the springboard to facilitate the launch of Takaful products in Europe.

For more information on Takaful or sukuk investment instruments, please contact lindsay.unwin@milliman.com, farzana.ismail@milliman.com, john.mckenzie@milliman.com, or your usual Milliman consultant.

PHASE II INSURANCE CONTRACT REPORTING

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In this case, the risk, service, and residual margin must be calibrated to produce no gain at issue. However, if the premium is insufficient to cover the basic obligations (i.e. with no margin), a day-one loss will be recognised in the P&L account. It seems somewhat counterintuitive that if two companies offer the same profitable product but one charges higher premiums than the other, the day-one profit will be zero and hence the same for both.

However, there are still several aspects of this model that need to be defined, including clearly setting out the meaning of 'rationally' and the application to items such as participating contracts.

FULFILMENT VALUE

The fulfilment value model is essentially based on the expected present value of the cost of fulfilling the obligation to the policyholder over time. Consequently, it is consistent with the normal course of insurance business, whereby an insurer fulfils its obligations to the policyholder as contemplated in the insurance contract.

Consistent with IAS 37, the value is from the insurer's perspective and would be

calculated using the three-building-block approach. The model would also be calibrated to have no gain, unless premiums are insufficient to cover the best-estimate cost of fulfilling the insurer's obligations.

DIFFERENCES ACROSS THE POND

One of the ultimate goals of the joint project between the IASB and US Financial Accounting Standard Board (FASB) is to develop a complete accounting standard for insurance contracts that would replace the existing Phase I IFRS 4: Insurance Contracts standard and US GAAP accounting requirements for insurance contracts.

The joint meeting in July 2009 produced no consensus on the measurement attribute. The IASB is still entertaining both models, leaning slightly towards the transaction-based objective in the form of the IAS 37 model. By comparison, the FASB has tentatively decided to focus on measurement objectives involving the 'fulfilment' notion and is generally not in favour of transaction-based measurement objectives.

EXPENSIVE TREATMENT

However, at the October meeting, the IASB voted eight to six and the FASB unanimously in favour of recognising acquisition expenses at issue and against allowing an offset in revenue or in the liability. This is consistent with both of their views on Revenue Recognition, where they consider that no service has been provided on day one and, therefore, no revenue (or income) should be recognised. It will be a major issue for many insurance companies around the globe if acquisition expenses are required to be expensed with no credit given for recovery of those expenses.

Consequently, the sense is that if the resultant measurement objective does not fully reflect the underlying dynamics of the business, other supplementary reporting frameworks such as MCEV will continue to persist as a key communication tool for management to its stakeholders.

For more information on IFRS please contact matthew.cocke@milliman.com, emma.mcwilliam@milliman.com, william.hines@milliman.com, or your usual Milliman consultant.

CONFERENCES

MILLIMAN CONSULTANTS are speaking at a number of forthcoming events. If you have not signed up already, it may be possible to get a discount by mentioning that you are a Milliman client.

DATE	ORGANISER	EVENT
10-11 February 2010	Arete Events	7th Annual SRP.com Conference
Late March 2010	Channel Islands Actuarial Society	Reducing pension scheme risk in the current environment - Longevity risk



Milliman would like to draw to your attention the fact that we have recently moved to a brand new office, situated in the heart of the city of London. We look forward to welcoming you when we have the pleasure of your next visit.



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